

# TABLA USO FRESAS ROTATIVAS

Rotary Burrs Use Table

Tableau usage fraises limes rotatives

## Recomendaciones Uso:

- Trabajar con las máximas revoluciones, menos en materiales malos conductores del calor, como INOX o Titanio.
- Aplicar un movimiento constante y una ligera presión de la rotativa.
- Es posible modificar las condiciones de la tabla.
- Los materiales duros y las series largas requieren de menos r.p.m. (max. 15.000)
- Dejar que la viruta se caliente mucho por contacto puede causar que se ablande la soldadura y se suelte la cabeza del mango.
- No profundizar la rotativa más de 1/3 de su periferia.
- Usar gafas protectoras para su seguridad.

## Suggestions for Use:

- Working with maximum revolutions, except for bad heat-conducting materials, like Stainless Steel or Titanium.
- Employ constant movement and soft pressure.
- It's possible to modify table's conditions.
- Hard materials and long series need less r.p.m. (max. 15.000)
- If you let chipping to heat too much, welding could get softened and shank's head could drop.
- Don't go deeper than 1/3 of burrs' periphery.
- Use protecting glasses for your own security.

## Conseils d'utilisation:

- Travailler aux maximales tours par minute, moins sur des matériaux mauvais conducteurs de la chaleur comme les INOX où les Titaniums.
- Employer un mouvement constant et une faible pression de la fraise lime.
- C'est possible de modifier les conditions du tableau.
- Les matériaux durs et les séries longues ont besoin de tours par minute inférieurs. (max. 15.000)
- Laisser les copeaux s'échauffer par contact peut provoquer l'amollissement de la soudure et la séparation de la tête de la queue.
- Pas approfondir la fraise lime plus de 1/3 de sa périphérie.
- Travailler toujours avec lunettes de protection.

| Material |   |            | Vc   | Ø 3 mm | Ø 6 mm | Ø 10 mm | Ø 12 mm | Ø 16 mm | Ø 20 mm |
|----------|---|------------|--|--------|--------|---------|---------|---------|---------|
| <b>P</b> |        | <b>P.1</b> | <850 N/mm <sup>2</sup>                               | 80.000 | 50.000 | 30.000  | 25.000  | 20.000  | 15.000  |
|          |   | <b>P.2</b> | < 1000 N/mm <sup>2</sup>                             | 80.000 | 50.000 | 30.000  | 25.000  | 20.000  | 15.000  |
|          |   | <b>P.3</b> | 1000-1300 N/mm <sup>2</sup>                          | 80.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
|          |   | <b>P.5</b> | MARTENSÍTICO<br>Martensitic                          | 80.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
| <b>M</b> | INOX AUSTENÍTICO<br>Austenitic Stainless Steel<br>Aciers Inox Austénitique                |            |  | 80.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
| <b>K</b> | FUNDICIÓN<br>Cast Iron<br>Fonte   | <b>K.1</b> | < 700 N/mm <sup>2</sup>                              | 65.000 | 45.000 | 30.000  | 25.000  | 20.000  | 12.000  |
|          |   | <b>K.2</b> | 700-1000 N/mm <sup>2</sup>                           | 65.000 | 45.000 | 30.000  | 25.000  | 20.000  | 12.000  |
| <b>S</b> | ALEACIONES TERMORRESISTENTES<br>Heat-Resistant Alloys<br>Alliages résistants à la chaleur |            |  | 80.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
| <b>N</b> | Cu - BRONCE -<br>LATÓN<br>Copper - Bronze<br>- Brass<br>Cuivre - Bronze -<br>Laiton       | <b>N.1</b> | VIRUTA CORTA<br>Short Chip<br>Copeaux Courts         | 65.000 | 45.000 | 30.000  | 25.000  | 20.000  | 12.000  |
|          |   | <b>N.2</b> | VIRUTA LARGA<br>Long Chip<br>Copeaux Longs           | 65.000 | 45.000 | 30.000  | 25.000  | 20.000  | 12.000  |
|          | ALUMINIO -<br>MAGNESIO<br>Aluminium -<br>Magnesium  | <b>N.3</b> | NO ALEADO<br>Unalloyed<br>Sans Alliage               | 65.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
|          |   | <b>N.4</b> | < 10% Si   | 65.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
|          |   | <b>N.5</b> | > 10% Si   | 65.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
|          |        | <b>N.6</b> | TERMOPLÁSTICOS<br>Thermoplastics<br>Thermoplastiques | 65.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |
|          |   | <b>N.7</b> | DUROPLÁSTICOS<br>Hard-Plastics<br>Plastiques Durs    | 65.000 | 40.000 | 25.000  | 20.000  | 15.000  | 10.000  |

$$r.p.m. = \frac{Vc \times 1.000}{\pi \times \phi}$$

# TABLA USO FRESADO METAL DURO

Carbide Milling Use Table - Tableau usage Fraisage carbure

## FRESAS ROTATIVAS Rotary Burrs Fraises limes rotatives

- **Usado Recomendado / Recommended Use / Utilisation conseillée**
- **Usado Alternativo / Alternative Use / Option d'emploi**

|                        |                          |                             |                                |            |                             |  |                           |                         |                            |   |                        |                            |                |                           |               |                        |              |          |          |                                  |                  |                                |                 |  |                     |           |
|------------------------|--------------------------|-----------------------------|--------------------------------|------------|-----------------------------|--|---------------------------|-------------------------|----------------------------|---|------------------------|----------------------------|----------------|---------------------------|---------------|------------------------|--------------|----------|----------|----------------------------------|------------------|--------------------------------|-----------------|--|---------------------|-----------|
| <850 N/mm <sup>2</sup> | < 1000 N/mm <sup>2</sup> | 1000-1300 N/mm <sup>2</sup> | ANTIDESGASTE<br>Wear-Resistant | Anti-Usure | MARTENSÍTICO<br>Martensitic | INOX AUSTENÍTICO<br>Austenitic Stainless Steel | Aciers inox austenitiques | < 700 N/mm <sup>2</sup> | 700-1000 N/mm <sup>2</sup> | ALEACIONES TERMORRESISTENTES<br>Heat-Resistant Alloys | Alliages thermostables | VIRIJA CORTA<br>Short Chip | Copeaux courts | VIRIJA LARGA<br>Long Chip | Copeaux longs | NO ALEADO<br>Unalloyed | Sans alliage | < 10% Si | > 10% Si | TERMOPLÁSTICOS<br>Thermoplastics | Thermoplastiques | DUROPLÁSTICOS<br>Hard Plastics | Plastiques durs | Composites de Fibras<br>Fiber Composites | Composites en fibre | 45-70 HRC |
|------------------------|--------------------------|-----------------------------|--------------------------------|------------|-----------------------------|--|---------------------------|-------------------------|----------------------------|---|------------------------|----------------------------|----------------|---------------------------|---------------|------------------------|--------------|----------|----------|----------------------------------|------------------|--------------------------------|-----------------|--|---------------------|-----------|

| Ref. | Pag. | Norma Norm | Tipo Type | Material      | Rec. Coat. Revêt. | Dent. | P   |     |     |     |     | M   |     | K   |     | S   |     | N   |     |     |     |     |   |   | H |  |
|------|------|------------|-----------|---------------|-------------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|---|---|--|
|      |      |            |           |               |                   |       | P.1 | P.2 | P.3 | P.4 | P.5 | K.1 | K.2 | S.1 | S.2 | N.1 | N.2 | N.3 | N.4 | N.5 | N.6 | N.7 | F | H |   |  |
| 9260 | 342  | ZYA-S      | B         | MD/HM/Carbure | ALTIM             | 1     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 4     | ○   | ○   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9240 | 342  | ZYA-S      | B         | MD/HM/Carbure |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9250 | 343  | ZYA        | A         | MD/HM/Carbure | ALTIM             | 1     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 4     | ○   | ○   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9230 | 343  | ZYA        | A         | MD/HM/Carbure |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9251 | 344  | WRC        | C         | MD/HM/Carbure | ALTIM             | 1     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 4     | ○   | ○   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | S     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | M     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9231 | 344  | WRC        | C         | MD/HM/Carbure |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9252 | 345  | WKN        | N         | MD/HM/Carbure |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 4     | ○   | ○   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9254 | 346  | SPG        | G         | MD/HM/Carbure | ALTIM             | 1     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 4     | ○   | ○   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | M     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9255 | 347  | SKM        | M         | MD/HM/Carbure |                   | 1     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 4     | ○   | ○   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
| 9256 | 347  | KSK        | K         | MD/HM/Carbure |                   | 3     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 4     | ○   | ○   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |
|      |      |            |           |               |                   | 6     | ●   | ●   | ●   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |   |   |  |

